

# Novelties in *Draba* (Brassicaceae) from Venezuela, Ecuador, and Peru

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*Draba* L., the largest genus in the Brassicaceae (Cruciferae), includes some 350 species distributed primarily in the Northern Hemisphere, especially in arctic and subarctic regions, and also in montane and alpine portions of temperate regions (Al-Shehbaz, 1987). The genus is well developed in South America, where 65–70 species grow along the Andes from Colombia and Venezuela south into Patagonia. Many of these species are poorly understood, and several others have been described only recently (Al-Shehbaz, 1989; Rangel & Santana, 1989).

The South American members of *Draba* belong to several species complexes, of which the taxonomy is much in need of critical study. A revision of the genus is now in progress. Because this revision will take several years to complete, it is felt necessary to publish the novelties and nomenclatural changes in advance in order to make these names available for various floristic and inventory studies.

***Draba steyermarkii*** Al-Shehbaz, sp. nov. TYPE: Ecuador. Azuay: páramos, in vicinity of Torreador, between Molleturo and Quinoas, 3,810–3,930 m, 15 June 1942, *Steyermark* 53077 (holotype, F; isotypes, GH, MO, NY, S).

*Draba violacea* Humb. & Bonpl. var. *lehmanniana* O. E. Schulz, Das Pflanzenreich IV. 105(Heft 89): 154. 1927. TYPE: Ecuador. Páramo del Cajas, Cuenca, 3,700–4,000 m, *Lehmann* 6477 (holotype, B; photos, F, GH, MO).

Fruticulus (3–)10–25(–45) cm altus; folia oblonga, 7–12(–18) mm longa, dense imbricata, supra pilis simplicibus pilosa, subtus pilis stellatibus subtomentosa, basibus persistentibus; racemi bracteati; petala late obovata, unguiculata, intense purpurea vel raro lilacina, (8–)9–12(–13) mm longa, (3.5–)4–5 mm lata; siliquae oblongae vel oblongo-lanceolatae, compressae, (8–)10–15 mm longae, 3–4 mm latae; styli (2.5–)3.5–5 mm longi.

Subshrubs or rarely suffrutescent herbs. Stems erect, single or few from the base, (3–)10–25(–45) cm tall, the lower portion to 6 mm diam., covered with persistent, thickened leaf remains of previous years. Leaves narrowly to broadly oblong, 7–12(–18) mm long, (2–)2.5–3.5(–4) mm wide, densely overlapping, often subappressed to stem, acute to obtuse, entire; upper surface sparsely to densely

pilose with appressed, antrorse, fine, straight trichomes; lower surface subtomentose with short-stalked to sessile, stellate or rarely cruciform trichomes, the rays slender, 1 or 2 of which are usually furcate; base of midrib thickened, triangular, persistent. Inflorescences bracteate, corymbose racemes, slightly elongated in fruit. Sepals erect, caducous, oblong, 4–5 mm long, 2–3 mm wide, purple or green with purplish apex and margin, glabrescent or sparsely pilose, the inner pair slightly saccate at base. Petals broadly obovate, deep purple or rarely lilac, clawed, (8–)9–12(–13) mm long, (3.5–)4–5 mm wide, rounded or slightly emarginate at apex; claws nearly as long as sepals. Filaments erect, slender, dilated at base, white, 5–6 mm long; anthers yellow, oblong, 1–1.2 mm long. Nectar glands confluent, subtending the bases of all filaments. Fruiting pedicels slender, pubescent, divaricate to ascending, straight or slightly curved, (4–)7–12(–17) mm long. Fruits oblong to oblong-lanceolate, compressed, softly pubescent, (8–)10–15 mm long, 3–4 mm wide, straight or usually curved; style slender, (2.5–)3.5–5 mm long; stigma small, entire. Seeds ovate, compressed, dark brown, 1–1.4 mm long, 0.6–0.7 mm wide.

Flowering sporadically throughout the year; grows at altitudes of 2,700 to 4,400 m in grass páramo, rock crevices, and *Polylepis* woods.

*Paratypes*. ECUADOR. AZUAY: Cordillera Occidental, Páramo de Las Cajas “PLC,” 37.5 km from Cuenca on road to Molleturo, 1–2 km W of pass, *Molau & Öhman* 1473 (GB); PLC, *Harling & Andersson* 23363 (GB, QCA); PLC, W slope, ca. 1 km above Mihuir, *Harling & Andersson* 24626 (GB, QCA); PLC, Lagunas Suero-cocha, ca. 35 km on Cuenca–Molleturo road, 2–3 km beyond the pass, *Molau & Eriksen* 2825 (GB), 1 km NW of pass, *Molau & Eriksen* 2767 (GB); PLC, road from refugio to Migüir, about 6 km from the refugio, *Eriksen & Boysen Larsen* 45770 (AAU); Cajas National Park, Cuenca–Molleturo road, *Clemants, Boeke, N. Holmgren & Crisafulli* 2155 (NY, QCA), *Jaramillo* 7194 (NY, QCA).

This taxon was recognized by Schulz (1927) as *D. violacea* var. *lehmanniana*. The latter is based on a specimen annotated in Gilg’s handwriting as *D. lehmanniana*, a name that was never published at the specific rank. For reasons given below, I recognize this taxon as a species based on a different

type collection with excellent flowering and fruiting material, rather than elevating to the specific rank a variety whose fragmentary type consists of flowering material only.

*Draba steyermarkii* is closely related to *D. violacea* and *D. alyssoides* Humb. & Bonpl. From the latter, it is readily distinguished in having purple petals (8–)9–12(–13) mm long, styles (2.5–)3.5–5 mm long, and subtomentose lower leaf surface with finely stellate or rarely cruciform trichomes. In contrast, *D. alyssoides* has white petals 5.5–6.5(–7.5) mm long, styles (0.8–)1.5–2.2(–3) mm long, and scabrous lower leaf surface with coarse, usually stiff, furcate, trifid, or cruciform trichomes. *Draba steyermarkii* differs from *D. violacea* by its oblong, green leaves, whose pilose upper surfaces are covered exclusively by simple trichomes, and by its small (1–1.4 × 0.6–0.7 mm) seeds. The latter has obovate, white-tomentose leaves, whose upper surfaces are densely covered by a mixture of very fine stellate and simple trichomes, and has slightly larger (1.5–1.7 × 0.8–1.1 mm) seeds.

***Draba venezuelana*** Al-Shehbaz, sp. nov. TYPE:

Venezuela. Mérida: Distrito Rivas Dávila, extremo septentrional del páramo del El Batallón, entre la Torre de TV y Laguna Grande, entrando por El Portachuelo, 3,400 m, 22 Dec. 1972, Ruiz-Terán & López-Figueiras 8308 (holotype, MO; isotype, GH).

Herba perennis suffruticosa multicaulis; caules decumbentes, hirsuti, 10–17 cm longi; folia caulina sessilia, dentata, oblonga vel ovata, nonciliata, inferne pilis stipitato-furcatibus vel stellatis, superne pilis simplicibus et stellatis praedita; racemi ebracteati; petala flava, unguiculata, 4.5–6 mm longa; pedicelli fructiferi divaricati, recti, hirsuti, 3–8 mm longi; siliquae ovatae vel ellipticae, compressae, glabrae, 4–6 mm longae, 2.5–3 mm latae; styli 0.9–1.2 mm longi.

Suffrutescent herbs 10–17 cm tall. Stems slender, several from the base, decumbent, covered with foliar remains of previous years, hirsute throughout with spreading simple trichomes to 0.7 mm long, these mixed with stalked furcate trichomes. Lowermost leaves rosulate, short petiolate, oblong to oblanceolate, rounded at apex, entire, nonciliate, 7–18 mm long, 2–7 mm wide, pubescent on both surfaces with short-stalked, furcate, trifid, and cruciform trichomes; petiolar bases persistent, becoming papery. Cauline leaves sessile, ovate to oblong or oblong-linear, 5–14 mm long, 2–5 mm wide, obtuse to subacute at apex, dentate, nonciliate, with indumentum similar to that of basal leaves except the upper surface usually with preponderance of simple trichomes. Inflorescences corymbose ra-

cemes, elongated considerably in fruit, ebracteate or rarely the lowermost flowers bracteate. Sepals erect, caducous, broadly oblong to ovate, 1.8–2.5 mm long, nonsaccate, rounded at apex, sparsely pubescent. Petals yellow, broadly obovate, clawed, emarginate, 4.5–6 mm long, 3–4 mm wide; claws ca. 2 mm long. Filaments erect, slender, 1.7–3 mm long; anthers broadly ovate to suborbicular, 0.4–0.5 mm long. Nectar glands confluent, subtending the bases of all filaments. Fruiting pedicels 3–8 mm long, divaricate, straight, hirsute with a mixture of simple, furcate, and stellate trichomes. Fruits ovate to elliptic, compressed, 4–6 mm long, 2.5–3 mm wide; valves with a prominent midvein, glabrous or rarely with a few trichomes near the replum; septum complete; style slender, 0.9–1.2 mm long; stigma entire. Seeds 1 or 2 per locule, ovate, compressed, 1.8–2.1 mm long, 1.3–1.5 mm wide.

*Paratypes.* VENEZUELA. MÉRIDA: Distrito Rivas Dávila, Canada de la quebrada La Ferruginosa, extremo septentrional del páramo del El Batallón, 3,300 m, Ruiz-Terán, López-Figueiras & Griffin 12600 (GH, MO); Páramo El Batallón, 3,000–3,600 m, Charpin, Jacquemoud & Ruiz-Terán AC-13542 (G).

*Draba venezuelana* is related to the Colombian *D. pachythyrsa*, from which it differs in having several woody stems from the base, ebracteate inflorescences, petals 4.5–6 mm long, hirsute, straight fruiting pedicels, glabrous fruits, styles 0.9–1.2 mm long, and seeds 1.8–2.1 mm long. In contrast, *D. pachythyrsa* has one or few stems from a thick, unbranched caudex, inflorescences bracteate throughout, petals 2.8–3.5 mm long, stellate, recurved fruiting pedicels, puberulous fruits, styles (0.2–)0.3–0.5(–0.6) mm long, and seeds 1.3–1.6 mm long. The presence of uniform indumentum of short-stalked, furcate to cruciform trichomes on the basal leaves is also a distinctive feature of *D. venezuelana*. This aspect of indumentum, as well as the lack of setose cilia on the leaves and the shorter styles, should readily distinguish *D. venezuelana* from the Venezuelan *D. pamplonensis*. The latter has setose-ciliate leaves and styles 2.5–3 mm long.

***Draba wurdackii*** Al-Shehbaz, sp. nov. TYPE:

Peru. Amazonas: Prov. de Chachapoyas, upper slopes and summit of Cerro Campanario, 3,600–3,900 m, 3 Aug. 1962, Wurdack 1577 (holotype, US #2404314).

Herba perennis suffruticosa; folia oblonga vel elliptica, scabra, denticulata, sessilia, inferne pilis trifidis subsessilibus praedita; sepala oblonga, 2.5–3 mm longa; petala flava, spathulata, 3–3.5 mm longa; siliquae anguste oblongae, 6–9 mm longae, 2–2.5 mm latae; valvae puberulae vel hirsutulae, obtusae; styli 0.4–0.5 mm longi.

Slender, suffrutescent perennial herbs. Lower stems woody, stramineous, to 1 mm wide, without foliar remains of previous years; upper stems leafy, stellate-pubescent, 3–5 cm long. Leaves oblong to elliptic, 3–10 mm long, 1–4 mm wide, scabrous, acute, denticulate, usually with 2 or 3 teeth on each side, cuneate to a sessile base; upper surface with subappressed simple trichomes to 0.8 mm long, these are mixed with short-stalked furcate or trifid trichomes; lower surface with predominantly subsessile or short-stalked, trifid trichomes mixed with smaller, fewer, cruciform trichomes, the rays unbranched. Inflorescences few-flowered, corymbose racemes, slightly elongated in fruit, the lower portion bracteate. Sepals erect, oblong, caducous, 2.5–3 mm long, rounded at apex, yellowish and scarious at margin, nonsaccate, sparsely hirsute with simple and furcate trichomes. Petals pale yellow, spatulate, not clawed, 3–3.5 mm long; ca. 1.3 mm wide. Filaments yellowish, erect, 2–2.2 mm long; anthers oblong, 0.4–0.5 mm long. Nectar glands confluent, subtending the bases of all filaments. Fruiting pedicels divaricate, straight, 3–6 mm long, pubescent with trifid trichomes. Fruits narrowly oblong, compressed, 6–9 mm long, 2–2.5 mm wide; valves obtuse at both ends, puberulous or hirsutulous with simple trichomes to 0.2 mm long; septum complete; style 0.4–0.5 mm long; stigma entire. Seeds ovate, compressed, ca.  $1.2 \times 0.8$  mm.

*Draba wurdackii* is most closely related to *D. peruviana*, from which it is easily distinguished in having slender stems without foliar remains, lower leaf surfaces with predominantly trifid trichomes with unbranched rays, yellow petals 3–3.5 mm long, narrowly oblong fruits with obtuse valves, and styles 0.4–0.5 mm long. In contrast, *D. peruviana* is a subshrub that has stout stems with foliar remains, lower leaf surfaces with stellate trichomes, of which some rays are furcate or trifid, white petals 7–10 mm long, broadly oblong (rarely ovoid or subelliptic) fruits with acute valves, and styles 1.5–3 mm long.

***Draba funckii*** (Turczaninow) Al-Shehbaz, comb. nov. Basionym: *Dolichostylis funckii* Turczaninow, Bull. Soc. Imper. Nat. Mosc. 27(2): 306. 1854. *Draba lindenii* (W. J. Hooker) Planchon var. *funckii* (Turczaninow) O. E. Schulz, Das Pflanzenreich IV. 105(Heft 89): 161. 1927. *Draba dendroides* Linden & Planchon, Trois. Voy. Linden, Bot., Pl. Columb. 1: 15. 1874/1875. TYPE: Venezuela. Mérida: Sierra Nevada, 10,000 ft., *Funk & Schlim* 1606 (holotype, KW n.v.; isotypes, G (photos, F, MO), P).

Schulz (1927) treated *Draba funckii* as a variety of the closely related *D. lindenii*. The differences between the two are sufficient enough to treat them at the specific rank. *Draba funckii* has ebracteate inflorescences, rachises tomentose with stellate trichomes, ciliate leaves with tomentose lower surface, and flowers with small sepals (4–5 mm), petals (5–7 mm), filaments (5–6 mm), and anthers (0.8–1 mm). *Draba lindenii* has inflorescences bracteate along entire length, rachises hirsute to pilose with simple and furcate trichomes, nonciliate and completely glabrous leaf blades, and flowers with larger sepals ((5.5–)6–9 mm), petals (10–14 mm), filaments ((6.5–)8–14, and anthers (1.4–1.8 mm). Unfortunately, *D. funckii* is known only from the type collection, and further gatherings should provide a better understanding of the variability within the species.

***Draba pulvinata*** Turczaninow subsp. **berryi** Al-Shehbaz, subsp. nov. TYPE: Venezuela. Mérida: Distrito Miranda, páramo en las cabeceras de la Quebrada El Turmero (afuente del Río Motatán), a 11.7 km El Aguila por la carretera a Piñango, 4,100 m, 16 Mar. 1983, *Berry* 4030 (holotype, MO).

Folia aciliata, inferne tomentosa stellata, superne pilosa; racemi pedunculati; siliquae glabrae vel sparse pubescentes.

Leaves nonciliate; lower surface densely tomentose with fine stellate trichomes with 2- or 3-fid rays; upper surface pilose with appressed, simple or stalked furcate trichomes. Peduncles (3–)5–15 mm long. Fruits glabrous to sparsely pubescent.

Flowering February through May; grows on rock outcrops in páramo at altitudes of 2,550–4,300 m.

*Paratypes*. VENEZUELA. TRUJILLO: Distrito Urdaneta, La Morita, cresta arriba después de La Capilla, páramo de Tuñame, en la carretera Jajó-Tuñame, *Ruiz-Terán & López-Figueiras* 2188 (GH). MÉRIDA: Sierra de Santo Domingo, western flank of Pico Mucunuque, above Laguna Mucubaji, *Dawson & Pfitsch* 84 (GH); entre las Lagunas El Yoyo y de Barrios, *Gehriger* 82 (F, G, MO); Laguna El Yoyo, *Gehriger* 64 (US); páramo de las Piedras Blancas, *Vareschi & Pannier* 1221 (MER), *Solbrig* 4703 (GH); along road from Pico Aguila to Piñango, *Dawson & Pfitsch* 51, 91 (GH); Distrito Libertador, alrededores de la Laguna del Santo Cristo, 20 km al S de Mucuchíes, 3,620 m, 22 May 1973, *Ruiz-Terán* 8481 (MO); Distrito Justo Briceño, páramo NW del Alto de Totumo, hoyo del Río Chirurí, a 19.5 km de El Aguila por la carretera a Piñango, *Berry* 3894 (GH, MO); Distrito Campo Elías, entre La Mesa y El Hoyo, vertiente oriental del pico El Campanario, páramo de Los Conejos, Sierra de la Culata, *Ruiz-Terán* 6939 (GH); Distrito Rangel y Justo Briceño, páramo Las Cruces (páramo de Mucuchíes), a 6.3 km de

El Aguila por la carretera a Piñango, *Berry 4070* (MO); Distrito Miranda, páramo en las cabeceras de la Quebrada El Turmero (afluente del Río Motatán), a 13.3 km de El Aguila por la carretera a Piñango, *Berry 4077* (MO); same area but 12 km from El Aguila, *Berry 3817* (MO); 10.3 km from El Aguila, *Berry 4106* (MO).

The two subspecies of *Draba pulvinata* apparently have the same distributional range. They are indistinguishable in almost every aspect of floral and fruit morphology, and it is because of these facts that I am recognizing them at the subspecific instead of specific rank. Subspecies *berryi* is readily separated from subsp. *pulvinata* by its nonciliate leaves, with finely tomentose lower surface and an appressed pilose upper surface, and by its pedunculate infructescences. Subspecies *pulvinata* has ciliate leaves with glabrous surfaces, or sometimes only the lower surface is coarsely stellate, and it usually has sessile infructescences. It is not known if the two taxa are sympatric and whether or not they hybridize.

***Draba matthioides*** Gilg & O. E. Schulz subsp. ***saundersii*** Al-Shehbaz, subsp. nov. TYPE: Peru. Libertad, Prov. Santiago de Chuco, Cerro Pirgush, near Lake Pelagatos, Dist. Mollepata (?), 13,500 ft. [ca. 4,430 m], 1 July 1964, *Saunders 926* (holotype, K).

Petala purpurea; siliquae glabrae, leviter inflatae; styli 2–4 mm longi.

Petals purple; fruits glabrous, slightly inflated; style 2–4 mm long.

*Draba matthioides* subsp. *saundersii* is indistinguishable from subsp. *matthioides* in nearly all aspects of habit, leaf, flower, and fruit. It is readily distinguished from the type subspecies by its purple flowers, glabrous fruits, and shorter (2–4 mm) styles. Subspecies *matthioides* has orange to yellow flowers, tomentose fruits, and styles (4–)5–10 mm long. Because of the taxonomic significance of flower color in *Draba*, one might be tempted to recognize these two taxa as separate species. Only five specimens of the two subspecies were available for study, however, and in the absence of further material, the overall variation in these characters cannot be fully understood.

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